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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,179	01/14/2004	Ming Chen	7784-000686	4185
27572	7590	06/24/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303				CAO, HUEDUNG X
		ART UNIT		PAPER NUMBER
		2821		

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/757,179	CHEN ET AL.	
<b>Examiner</b>		<b>Art Unit</b>	
Huedung X. Cao		2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 January 2004.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 and 36-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-7,9-24,36 and 38 is/are rejected.
- 7) Claim(s) 8 and 37 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/15/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 8, and 37 are objected to because of the following informalities: in claim 8, the dimensions in accordance with table 1 should be included in the claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1-3, 5-7, 9-24, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over BURGER et al. (US 6353418 B1) in view of HOLAK et al. (US 5175555).

As per claim 1, Burger teaches the claimed "a waveguide for use with an antenna aperture for forming a transition region for channeling electromagnetic wave signals, the waveguide" (Burger, figure 2, waveguide 13 for use with antenna 9) comprising:

a dielectric member having a predetermined length and a generally conical profile, and inserted at least substantially into the tubular waveguide component to be at least substantially housed therein and wherein at least one of said dielectric member

and said tapering inner surface comprises a surface that is non-linear (Burger, figure 2, dielectric member 31, column 3, lines 37-56);

a tubular waveguide component (Burger, figure 2, waveguide 13) having a tapering inner surface which Burger does not explicitly disclose. However, Holak teaches that such waveguide having a tapering inner surface is widely used in the art (Holak, figure 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Burger a tubular waveguide with a tapering inner surface, as taught by Holak by doing so it would improve the resultant radiation pattern.

Claim 2 adds into claim 1, wherein the dielectric member is comprised of a plurality of linear sections forming said generally conical profile (Burger, figure 2, dielectric 31).

Claim 3 adds into claim 1, wherein the tapering inner surface comprises a plurality of adjacently formed linear surface sections inner surface sections (Burger, figure 2, waveguide 13 with plurality of linear surface sections).

Claim 5 adds into claim 1, wherein the tapering inner surface of the tubular waveguide component comprises a gradually curving inner surface (Holak, figure 2).

Claim 6 adds into claim 1, wherein the dielectric member is disposed concentrically within said tubular waveguide component (Burger, figure 2, dielectric 31 is disposed in the tabular waveguide).

Claim 7 adds into claim 1 , wherein said dielectric member has a non-linear outer surface and said tubular waveguide component has a non-linear inner surface (Burger, figure 2, dielectric 31).

Claims 9-11 are similar in scope to claims 1-3, and 6-8; therefore; they are rejected for the same reason.

Claims 12-15 are similar in scope to claims 1-3, and 6-8; therefore; they are rejected for the same reason.

Claims 16-24 are similar in scope to claims 1-3, and 6-8; therefore; they are rejected for the same reason.

Claim 36 is similar in scope to claim 1 except for the step of having plurality of waveguides for use in the array antenna. It would have been obvious to one of ordinary skill in the art to build the phased array antenna system with the duplicated waveguides.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over BURGER et al. (US 6353418 B1) in view of CHIRON et al. (US 3765021).

As per claim 4, wherein the generally conical profile of said dielectric member comprises a gradually curving surface which Burger does not explicitly disclose. However, Chiron teaches that such conical profile of the dielectric member with a gradually curving surface is widely used in the art ( Chiron, figure 1, dielectric structure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Burger a tubular waveguide with a tapering inner surface, as taught by Holak by doing so it would improve the resultant radiation pattern.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 38 is rejected under 35 U.S.C. 102(b) as being anticipated by BURGER et al. (US 6353418 B1).

As per claim 38, Burger teaches the claimed, a “waveguide for an antenna system” comprising: means for defining a cut-off frequency threshold of the waveguide by controlling a geometry of a tubular waveguide component relative to a dielectric insert disposed within the tubular waveguide component (Burger, column 6, lines 6-28).

***Allowable Subject Matter***

7. Claim 8, and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the Prior Art does not teach the tubular waveguide component and the dielectric member are formed having dimensions in accordance with table 1 herein

Length

Unit: Inches

Transition Transition

Air Dielectric tip Transition mid-section mid-section Dielectric Dielectric

Figure guide recess from air Length point length point guide guide Overall

No. radius guide end from tip from tip radius length radius length

1 0.39 0 4.75 n/a n/a 0.5 0.235 5.25

4 0.39 0.25 4.5 n/a n/a 0.5 0.235 5.25

6 0.39 0.25 4.5 1 .75 0.142 0.5 0.235 5.25

8 0.39 0.25 4.5 n/a n/a 0.5 0.235 5.25

10 0.39 0.25 4.5 1 .75 0.363 0.5 0.235 5.25

12 0.39 0.25 4.5 n/a n/a 0.5 0.235 5.25

14 0.39 0.25 4.5 1 .75 0.363/0.135 0.5 0.235 5.25

16 0.39 0.25 4.5 n/a n/a 0.5 0.235 5.25

18 0.295 0.25 3.5 0.07 0.5 0.165 4.25

***Inquires***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huedung Cao whose telephone number is (571) 272-1939.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Huedung Cao  
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Technology Center 2800